



Seattle City Council Committee Briefing - Seattle, WA

# Eco-Industrial Development - Making Change Happen

June 15, 2010 - Seattle City Hall

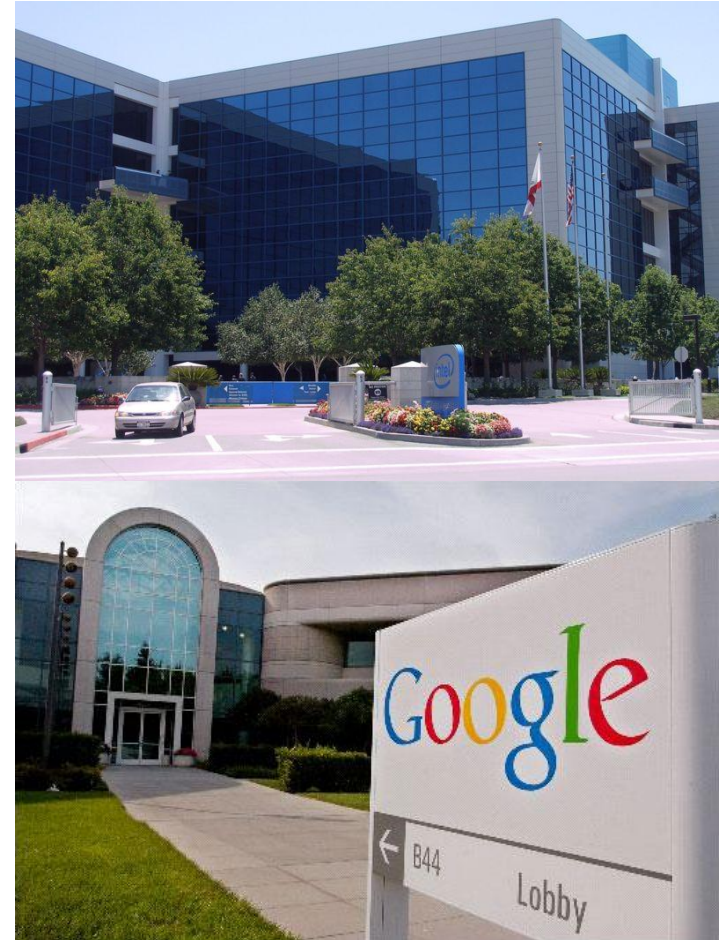
**Andreas W. Koenig**

EcoIndustry - Re-Tem Corp., Frankfurt / Tokyo

## Industrial Clusters, Districts & Parks

### □ Some Factors for Success

- short physical distance
- short mental distance
- diversified business supports synergies
- business & social network with open access
- facilities that support business
- strong champion companies
- educated and flexible work force
- support services & structure for innovation
- modern & flexible infrastructure
- attractive location
- **Three rules of real estate**



### ❑ Some Factors for Failure

- 'monoculture' clusters w/o vertical integration
- few possibilities for synergies
- no or unsuitable facilities
- no space for expansion
- relocation away from market and workforce
- weak social networks
- no or distant support structures
- accumulated problems
- outdated infrastructure
- wrong location

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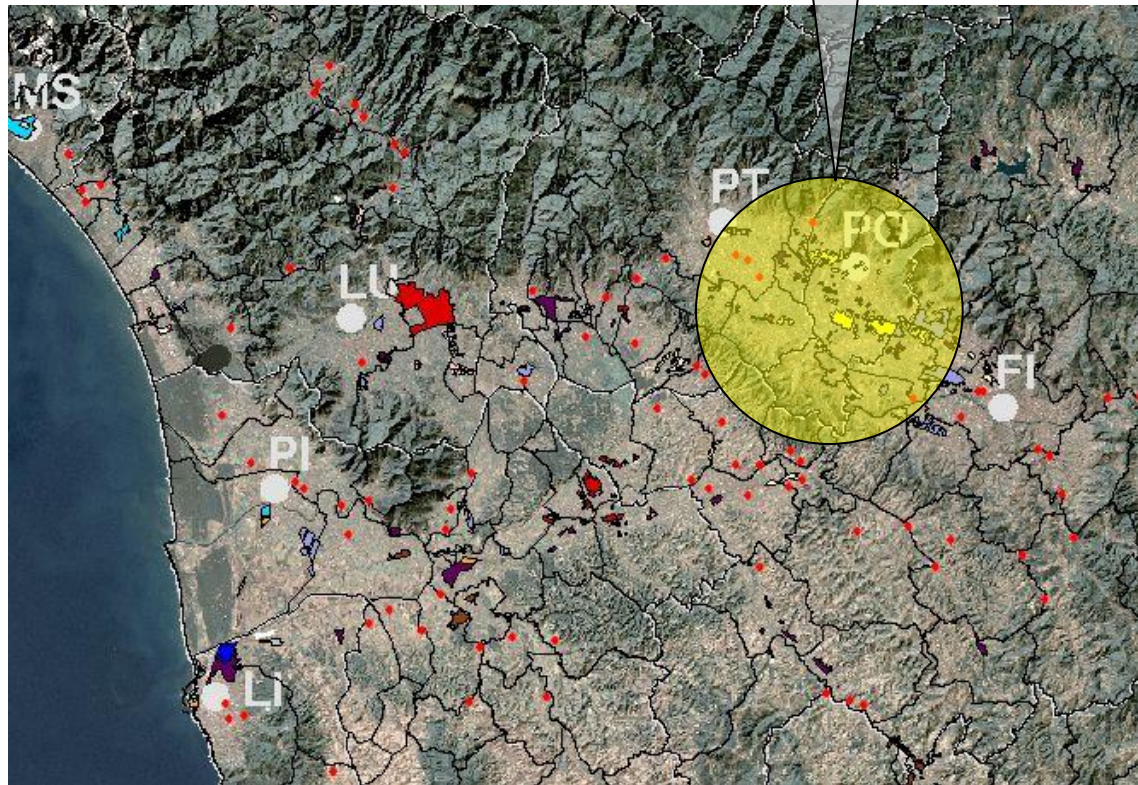
## Traditional Industrial Clusters: Prato Textile District, Italy



### ARPAT

Agenzia regionale per la protezione  
ambientale della Toscana

Prato Textile District



### Project CLOSED, Tuscany

- part of EU Life Program and EcosInd Regional Industrial Ecology Initiative (2000-2006)
- One of three Projects: Textile Industry District in Prato
- Historical Cluster dating back to 12th Century
- some 7,000 enterprises with 40,000 workers
- very competitive and innovative in global market
- Recycling of textile fibers in the Early 1800s
- Today: challenged by some 45,000 Chinese textile immigrants forming a cluster within the district

Source: ARPAT / EcosInd



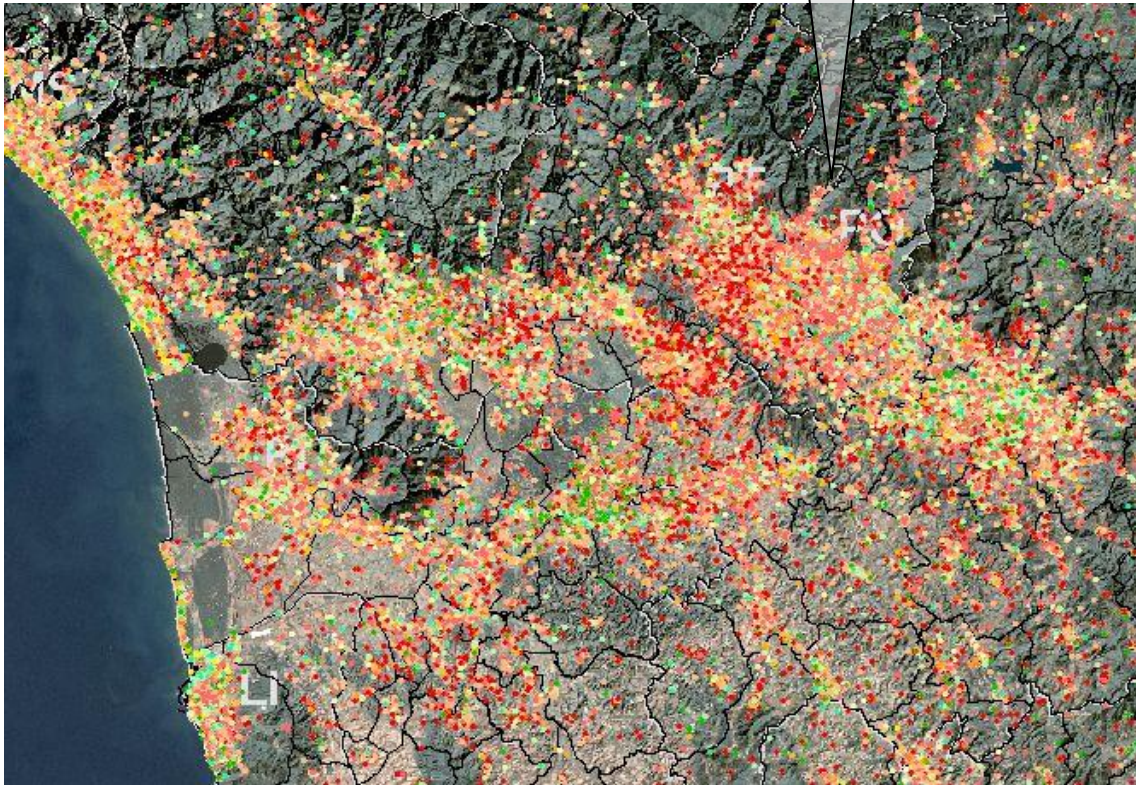
## Traditional Industrial Clusters: Prato Textile District, Italy



### ARPAT

Agenzia regionale per la protezione  
ambientale della Toscana

Prato Textile District



Source: ARPAT / EcosInd

### Project CLOSED, Tuscany

- Regional accumulation of enterprises
- Several clusters within industrial districts
- ARPAT: Regional Environmental Agency mail promoter of EID
- Project focus on software tools and technology
- Industry focus on cost and quality
- Challenge: Global market shift faster than local innovation ?

***Climate Change and Financial Crisis  
are not the Problem ...***

***.... they are Symptoms of the Problem***

## Management of Eco-Industrial Systems (1)

### ❑ Management by Infrastructure

- **district energy, renewables, efficiency**
- sewage treatment plants (STP)
- water reuse system
- integrated waste management system
- hazardous waste treatment center
- **common chemical storage**
- material exchange, recycling center
- estate-based emergency services
- **public transport**
- cluster-wide logistics systems
- **recreation, health and social services**





## Management of Eco-Industrial Systems (2)

### □ Management by Standards

- Environmental Services
- Environmental Impact Assessment (EIA)
- Environmental Management Systems - ISO 14001 / **ISO 14031**
- Energy Audits
- **Technology Assessment**
- supply chain management
- SD reporting – Global Reporting Initiative
- **Safety & Health Standards**
- Emergency Preparedness – APELL
- Responsible Care (chemical industry)





## Management of Eco-Industrial Systems (3)

### □ Management by Design

- **Green Buildings**
- Zero-Emission Concepts
- **Biotope buffer zones**
- Greening the supply chain
- **Ecological Footprint**
- Sustainable Products



## Management of Eco-Industrial Systems (4)

### ❑ Management by Cooperation - Management of Knowledge

- information exchange: **EID Center / Eco- Center**
- **Managers Club**, Business Forum as platform for networking
- **Stakeholder Roundtable**
- Joint activities: collective landscaping, **training**, health care, transportation & **logistics**, linked emergency services
- Material exchange systems / Industrial Symbiosis



## Management of Eco-Industrial Systems (5)

### ❑ Managing Networks: Hardware & Software

#### **Hardware**

- physical connections between companies
- no '*virtual*' networks, synergies must be real exchanges



#### **Software**

- social and business networks
- close ***mental distance*** and ***trust*** between actors and stakeholder



## Eco-Centers: Hubs For Sustainable Innovation

### ❑ What is an Eco-Center?

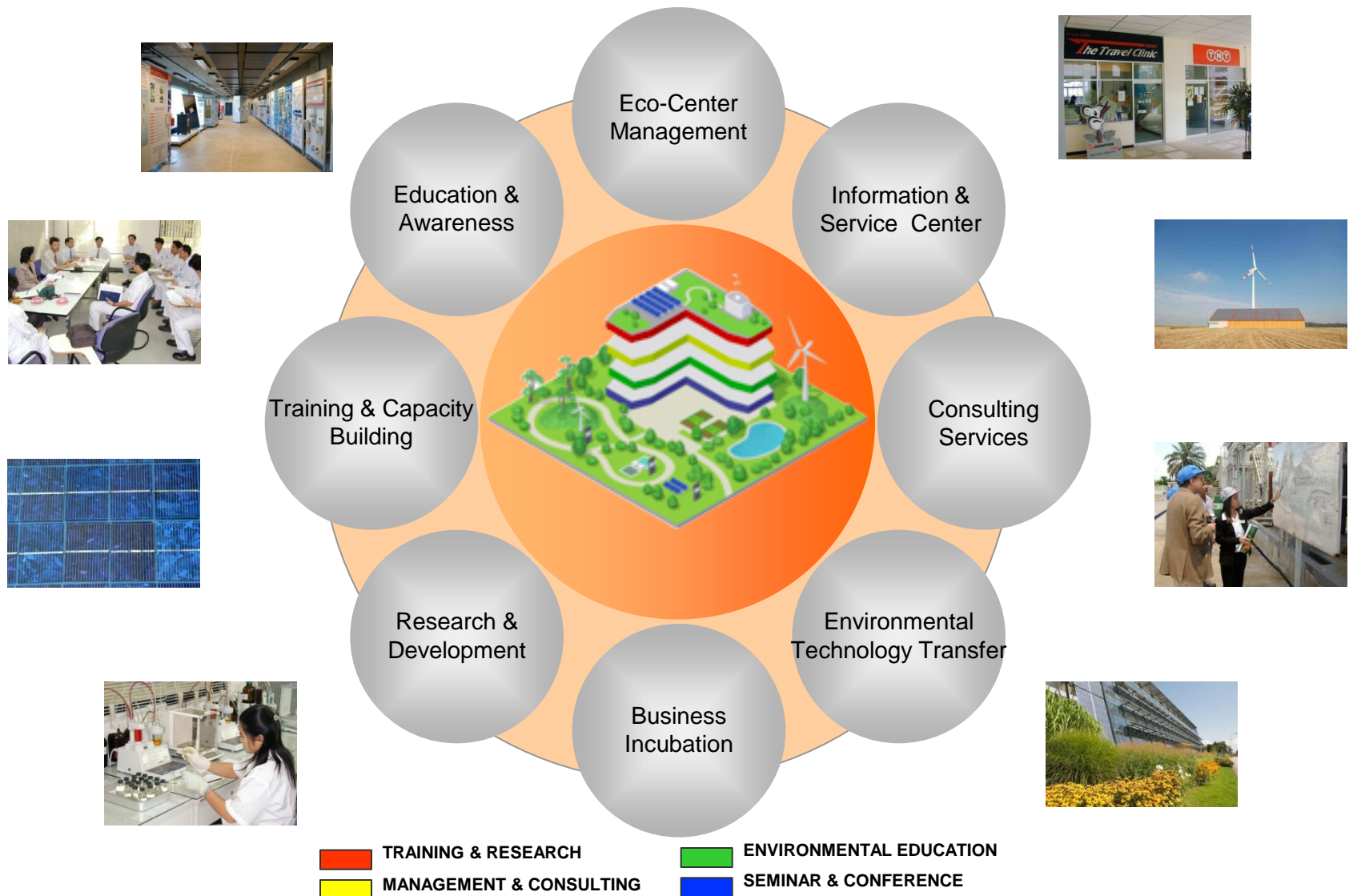
### ❑ Eco-Industrial Development Centers

- ▶ are multi-functional facilities
- ▶ catalyze and facilitate EID
- ▶ provide sustainable development & environmental services
- ▶ support awareness about sustainable development
- ▶ function as a hub for company networks
- ▶ are ideally located in Eco-Industrial Parks and near Resource Recovery Centers

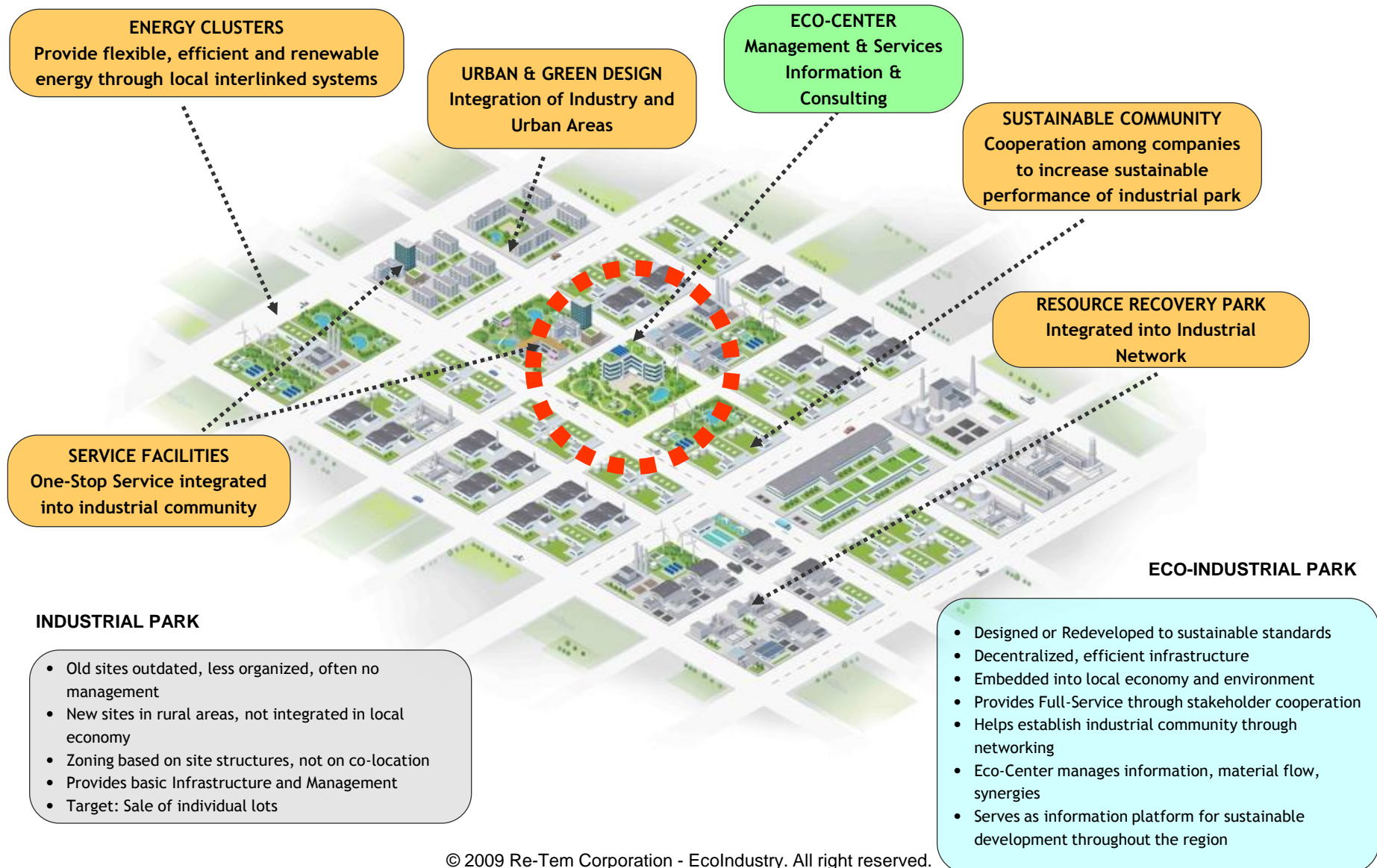




## Eco-Center Functions: Management & Services for Industrial Systems



## EIC & EIP: Management & Services for Sustainability



# TEDA Binhai Eco-Center Tianjin, China

by Re-Tem ©





## Service & Supporting Tools for SME: Examples

**BAUM Enterprise Network  
Germany**



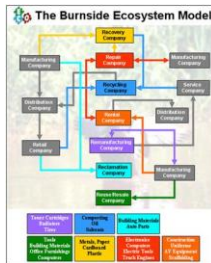
**Ford Supplier Park  
Cologne, Germany**



**Philips Eco-Enterprise Building  
Minneapolis, USA**



**Resource Recovery at  
Urban Ore  
Oakland, CA, USA**



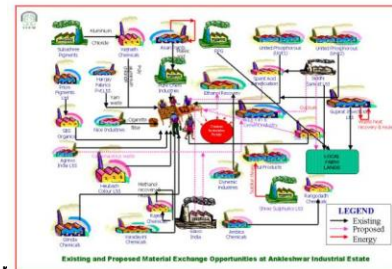
**Eco-Efficiency Center  
Burnside, Halifax, Canada**



**Responsible Care in  
Chemical Industry**

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**Kitakyushu  
Eco-Town  
Center, Japan**



**Hoechst Industrial  
Park Management  
Frankfurt, Germany**

**EID**



## Management / Services & Info Center



**Hoechst Infraserv**

Hoechst Industrial Park, Frankfurt



**Green Institute Minnesota**

Philips Eco-Enterprise Center



**Devens Eco-Center**

Devens Enterprise Commission



**Remondis Lippe Plant**

Resource Recovery Park, Lippe

- building & program administration
- operations management, facility management
- coordination of partners, sponsors, consultants
- coordination of programs & special activities
- information management, database, online service
- customer management
- waste management services, 3 R, OHS
- eco-efficient logistics, rentals, green procurement
- green consumer services, green product promotion
- Carbon Trading, By-Product Exchange, Hazardous Material Management

## Consulting / Business Incubation



**Business Help Desk**  
Tlalnepantla, Mexico City



**BAUM Network**  
Hamburg / Munich, Germany



**EcoStar Program**  
Devens Enterprise Commission



**Energy Efficiency Program**  
Jordan Ministry of Energy

- combining available consulting know-how
- Eco-Center Consultants, Project Consultants, Affiliated Consultants
- environmental planning, eco-efficiency, cleaner production, EMS / ISO 14000, OHS, industrial symbiosis
- one-stop business assistance to small businesses on sustainable business ideas for market-ready products
- legal, financial, management and logistic assistance for start-up phase

## Technology Transfer / Research & Development



**Environment Cluster  
Bavaria**

Technology Cluster, Augsburg



**PlusEnergy House**  
Freiburg, Germany



**Solarwerk**  
Freiburg, Germany

- technology assessment and supplier database for technology and system matching
- technology investment service for assisting adaptation and pilot implementation
- advisory service for assisting companies and suppliers in contracting and technology adaptation
- technology showroom and off-site, company based demonstration displays for available best technologies
- R&D for adapting existing technologies to local conditions
- identifying technology needs at the company level

## Training & Capacity Building / Education & Awareness



**EIP Training**

National EIP Program - Korea



**Eco-Center Exhibit**

Kaoshiung, Taiwan



**SURVIVAL Exhibition**

London - Tokyo - NewYork



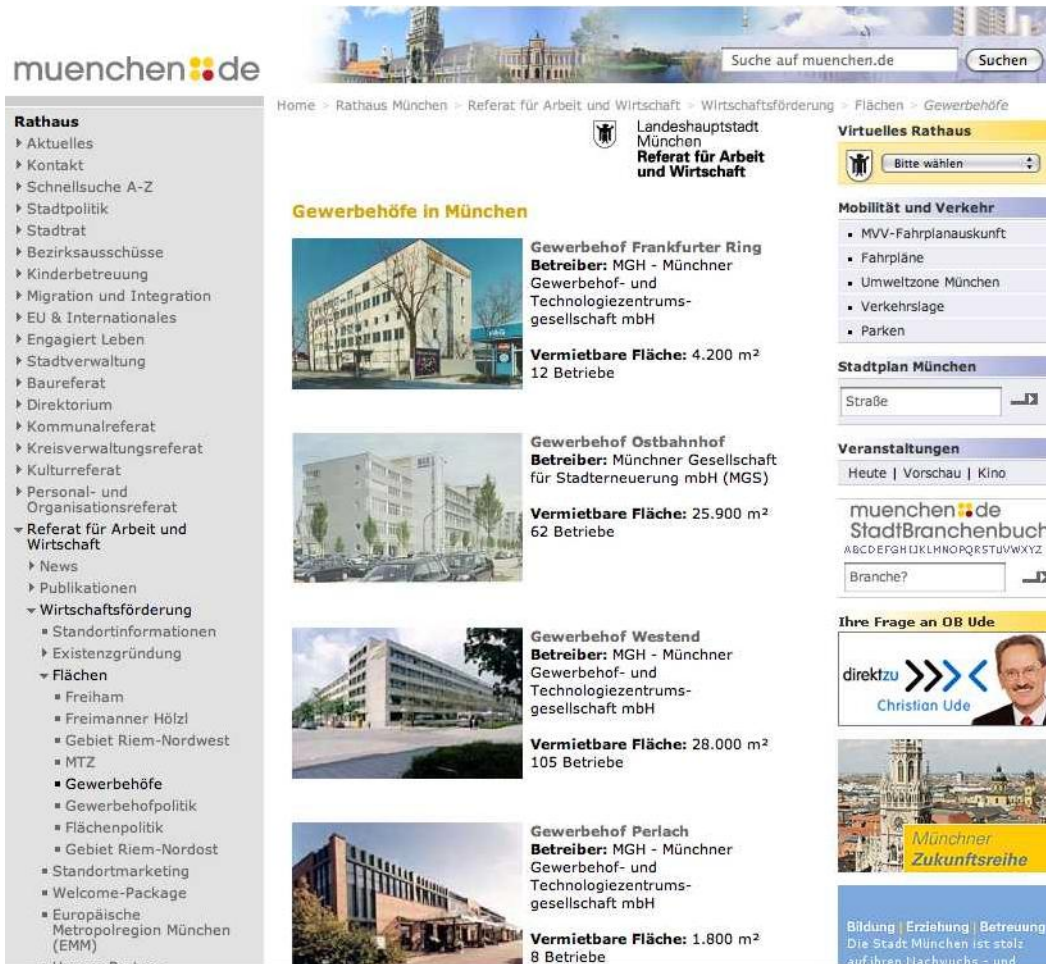
**Climate House**

Bremerhaven, Germany

- know-how and skills both within local government and the commercial / industrial sector
- courses, seminars and workshops based on specific needs of companies
- Specific training, for corporations and development projects
- exhibits about ecology, climate change mitigation, green development
- changing exhibits for special features or events
- Eco-Center Building as technology showcase



## Munich, Germany: Commercial Yards - Promoting Urban SME



The screenshot shows the 'muenchen.de' website with a search bar and navigation menu. The 'Referat für Arbeit und Wirtschaft' section is highlighted, listing various commercial yards with their respective operators, areas, and number of businesses.

Gewerbehofe in München	Betreiber	Vermietbare Fläche	Betriebe
Gewerbehof Frankfurter Ring	MGH - Münchner Gewerbehof- und Technologiezentrumsgesellschaft mbH	4.200 m <sup>2</sup>	12 Betriebe
Gewerbehof Ostbahnhof	Münchner Gesellschaft für Stadterneuerung mbH (MGS)	25.900 m <sup>2</sup>	62 Betriebe
Gewerbehof Westend	MGH - Münchner Gewerbehof- und Technologiezentrumsgesellschaft mbH	28.000 m <sup>2</sup>	105 Betriebe
Gewerbehof Perlach	MGH - Münchner Gewerbehof- und Technologiezentrumsgesellschaft mbH	1.800 m <sup>2</sup>	8 Betriebe



### Munich

Area	310 sq Km
Population	1.326.807
Population Density	4274 / sq Km

Source: Munich Office for Economic Development

## Munich Technology Center





## Munich Riem: Great Tools - Limited Success

### Riem Service Park for SME



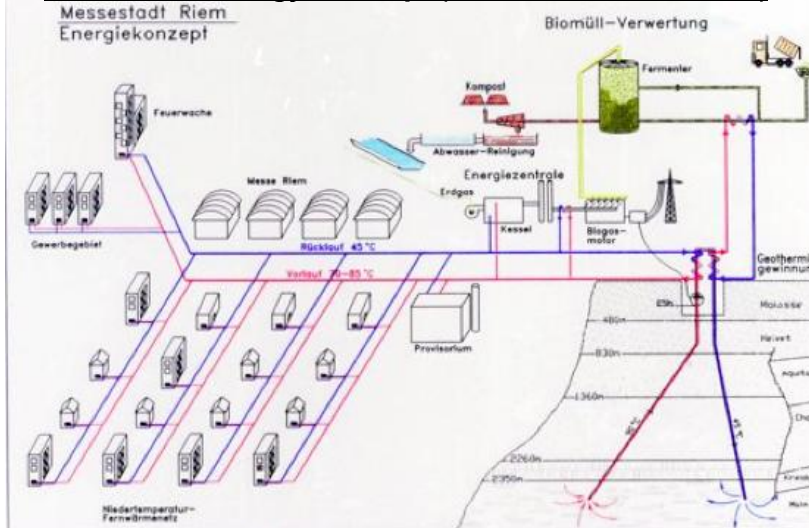
### Riem Arkades: Housing - Shopping - Community



Messestadt Riem

### Renewable Energy Concept (Geothermal / Biomass)

Messestadt Riem  
Energiekonzept

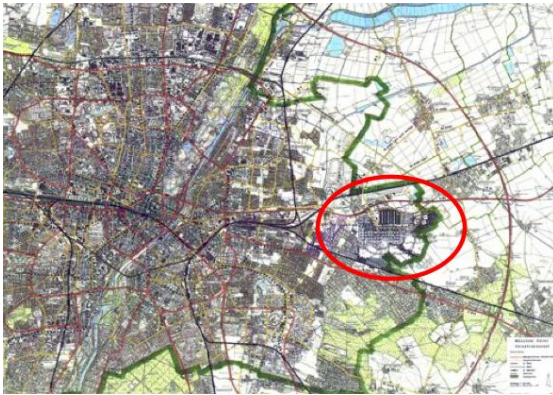


### Riem Office & Commercial Park for SME





## Munich Riem: Great Tools - Limited Success



### Munich Riem Airport Redevelopment

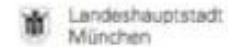
Source: Munich Office for Economic Development



## Munich Riem: Great Tools - Limited Success

### Design Guidelines – Ecological Tools

Landeshauptstadt  
München  
Referat für Stadtplanung  
und Bauordnung



#### Messestadt Riem Leitlinien zur Gestaltung



#### Messestadt Riem Ökologische Bausteine Teil I Stadtplanung



### Messestadt Riem

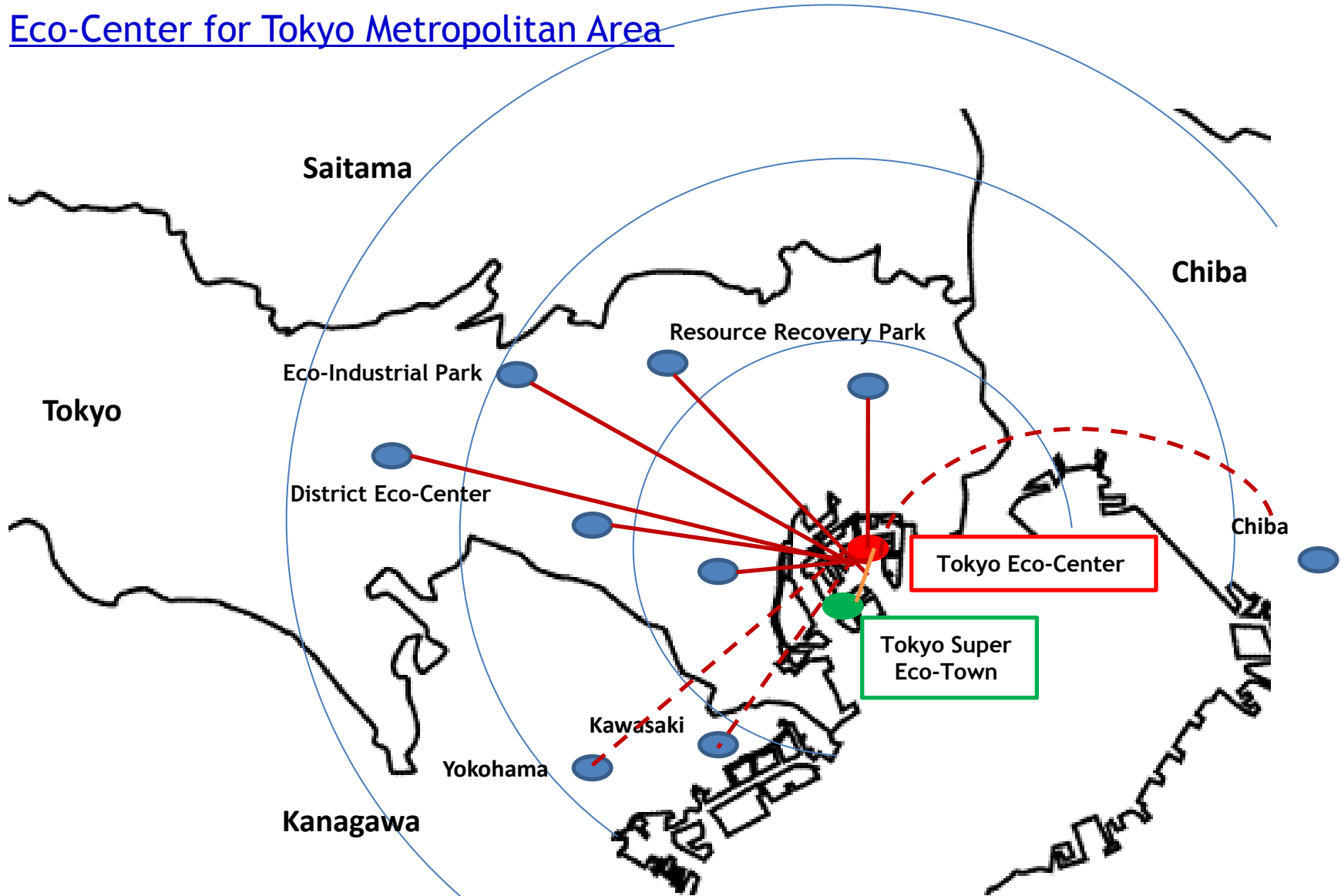


## Tokyo, Japan: Tokyo Super Eco-Town - Recycling & Energy Cluster

- **Tokyo Super Eco-Town:** Recycling Cluster based on zoning regulation
- National Eco-Town Program with local government support
- No direct government involvement
- Tokyo Super Eco-Town has active association (supported by Re-Tem Corp.)
- Clusters are based on Material Flow Analysis and partly co-location
- Vision: to expand clusters approach to all industrial areas
- Development of Eco-Center Concept for Tokyo Metro Region



## Eco-Center for Tokyo Metropolitan Area

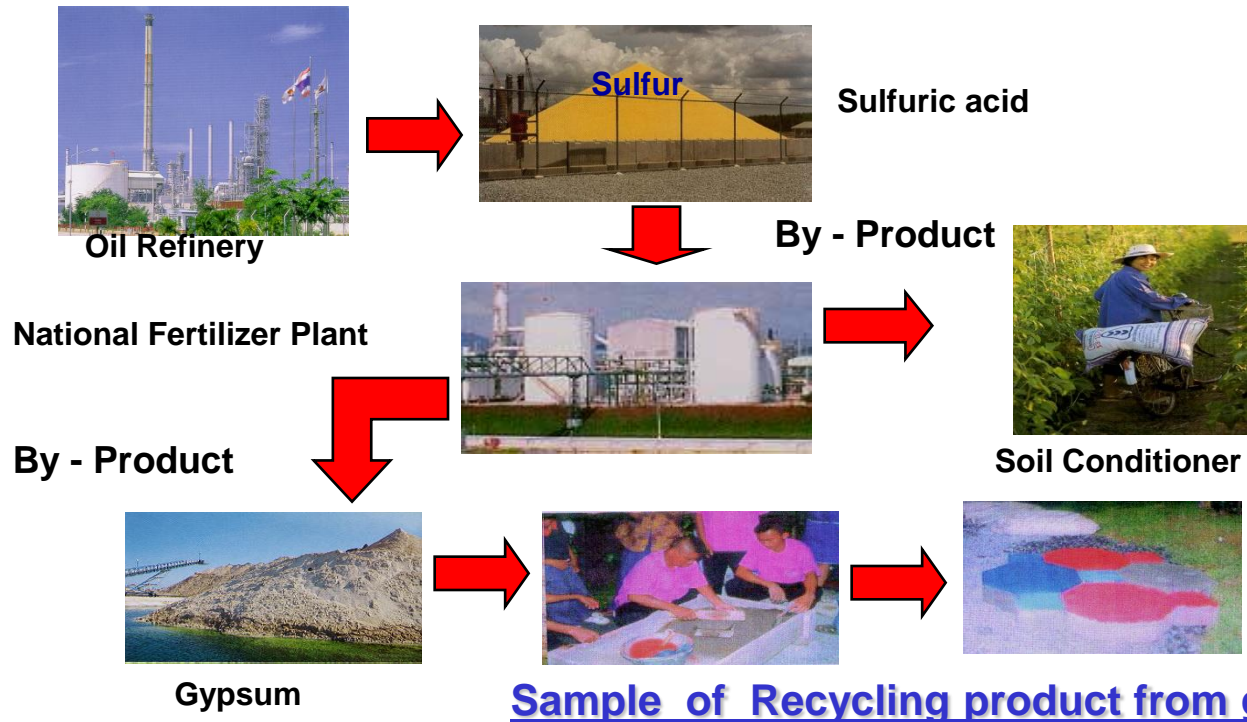




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## Map Ta Phut (Eco) - EIP Projects & Initiatives

- ❑ 459 joint activities (technology, social & health, environment, PR)
- ❑ Corporate Industry and Community cooperation





## Map Ta Phut (Eco) - Industrial Complex: Extreme Challenges

### ❑ Networking: Map Ta Phut Manager's Clubs



### Mobile Medical Unit



### Alliance in Emergency Response



### Visit your neighbor program



### P.R. Club

## Map Ta Phut (Eco) - Industrial Complex: Extreme Challenges

### □ Eco-Mnagement - dedicated teams - and all is well ...?




[Search](#)

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You Are Here: [Greenpeace SEAsia](#) > [News](#)

### Stand-off in Maptaphut: Rainbow Warrior protests at Belgian-owned coal power plant

July 15, 2008



**RAYONG, THAILAND —** Greenpeace flagship Rainbow Warrior today staged a peaceful protest against the expansion of a Belgian-owned coal power plant in Maphaphut, Rayong province in Thailand, anchoring a few meters off the coal wharf and unfurling banners saying "Quit Coal" and "Coal = Climate Change". The ship was greeted by tug boats and coal plant personnel who fired water cannons as it entered the coal port.

Water cannons are fired as Greenpeace activists on inflatables unfurl banners at Mapthaput port, Rayong 250 Kms east of Bangkok. Greenpeace flagship Rainbow Warrior today staged a peaceful protest against the expansion of a Belgian-owned coal power plant in Maphaphut, Rayong province in Thailand,

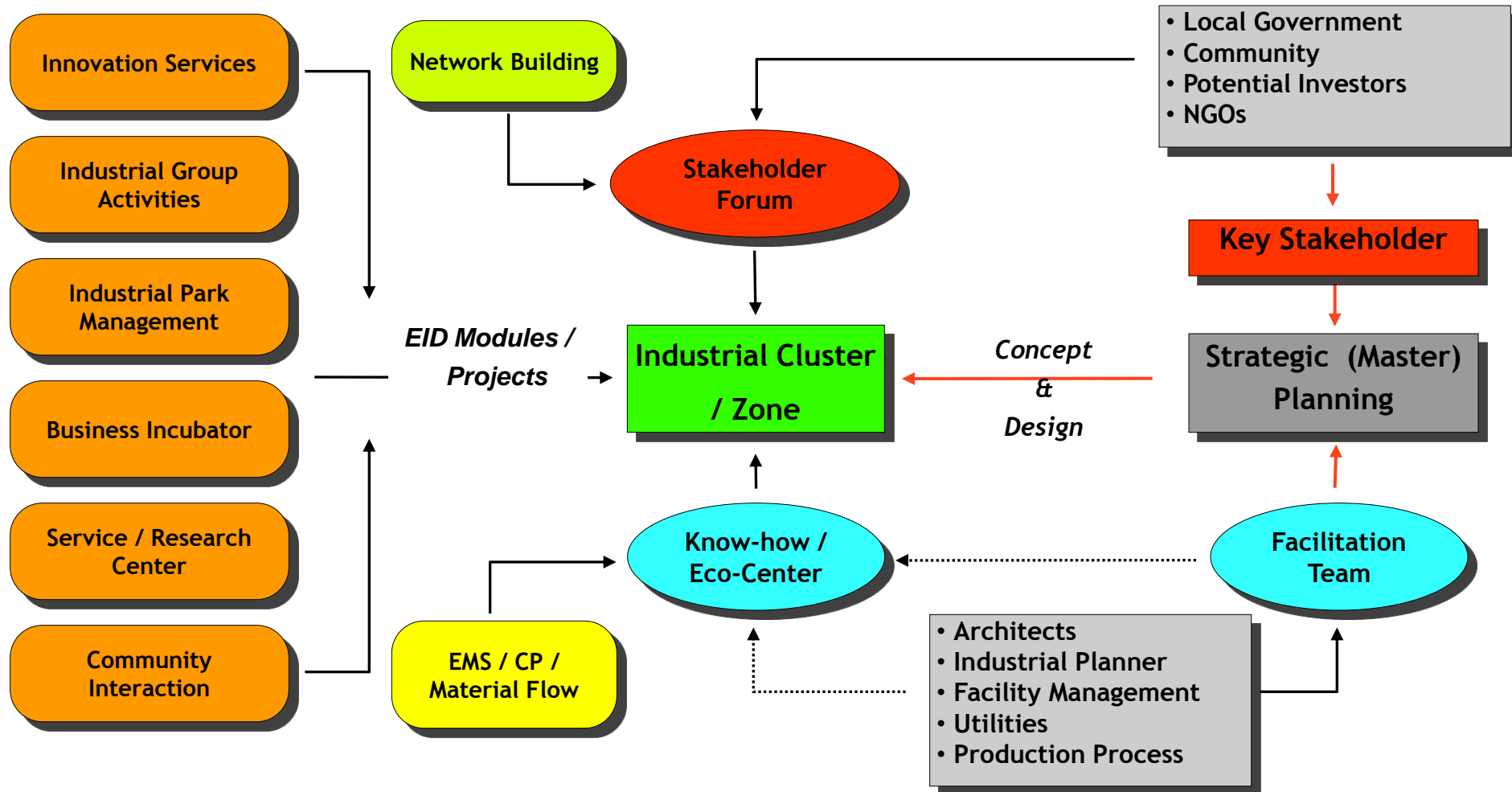
Greenpeace has slammed the hypocrisy of European countries on the issue of climate change. The environment group demanded that construction of the new 660 MW GHECO-one coal power plant owned by GLOW Energy be stopped because it will increase Thailand's carbon emissions,

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**PRESS CENTRE**

## Policy Prescription: Developing EID System



## Policy Prescription: Promoting Eco-Industrial Development

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### Assumptions

- **Eco-Industrial Development** improves the industrial system with net benefits to individual companies and the system as a whole
- **Policies support** the system as a whole without limiting individual companies
- **Increasing Prices** of natural resources and pollution fees will make synergies profitable



## Policy Prescription: Promoting Eco-Industrial Development

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### Industrial Policy

- **Prices** for Natural Resources need to be balanced against price of labour & education
- **Incentives** have to be tied to improved resource efficiency
- Policy needs to **integrate urban and industrial** development at planning, infrastructure and social level.

## Policy Prescription: Promoting Eco-Industrial Development

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### Technology Policy

- **Promoting Innovation** in all sectors, not only high-tech (it's a definition after all)
- Favor **decentralized technologies** as they provide more local wealth and resilience
- Tie **financial instruments** to efficiency performance and sustainable practices

## Policy Prescription: Promoting Eco-Industrial Development

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### Integrated Policy

- Elevate local enforcement to international & corporate standards through sharing of responsibilities between government and private sector
- Adjust sectoral policies to support system-wide action
- Enable local government & institutions to adapt to climate change and shifting markets
- Don't forget the **workers** - sustainable jobs are lasting jobs that strengthen local economies



..... always start with a Vision





**“Systems make it possible,  
people make it happen”**

***Jørgen Christensen***

**former CEO Nove Nordisk, Kalundborg  
adviser to the Symbiosis Institute**

**Thank You**

**Andreas W. Koenig**

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